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CARY W. BROOKS
General Motors Corporation
Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

EXAMINER	
PARSONS, THOMAS H	

ART UNIT	PAPER NUMBER
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,490	SCHLAG, HARALD	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *13-21* is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 22-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

This is in response to the Amendment filed 23 May 2006.

(*Previous*) DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-12 and 22-27 in the reply filed on 23 May 2006 is acknowledged. The traversal is on the ground(s) that the Office Action fails to identify how the inventions of Group I and II are independent. Examples of independent inventions would be an invention to a football and an invention to an internal combustion engine. The two inventions are unrelated, have nothing in common, and therefore are independent. Applicant properly included related inventions to a product and a method of making the same in one application to fulfill statutory requirements, for example, those requirements set forth in 35 U.S.C. 112. Since there has been no showing that the inventions are independent, Applicant is entitled to have the inventions set forth in claims 1-27 examined in one application.

This is not found persuasive because the restriction was not required on the basis that the invention are unrelated (see MPEP 806.06).

A process of making and a product made by the process can be shown to be distinct inventions if either or both of the following can be shown: (A) that the process as claimed is not an obvious process of making the product and the process as claimed can be used to make another materially different product; or (B) that the product as claimed can be made by another materially different process.

A product defined by the process by which it can be made is still a product claim (In re Bridgeford, 357 F.2d 679, 149 USPQ 55 (CCPA 1966)) and can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process; defining the product in terms of a process by which it is made is nothing more than a permissible technique that applicant may use to define the invention.

ln the instant case, the product can be made by another and materially different process such as by that described in U.S Patent No. 5,554,415 (TURCHAN et al.)

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

1. The rejections of claims 22-24 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention have been **withdrawn** in view of Applicant's Amendment.

Claim Rejections - 35 USC § 102

2. The rejections of claims 1-4, 9-11, and 25-26 under 35 U.S.C. 102(b) as being anticipate by Emerson (5,740,941) have been **withdrawn** in view of Applicant's Amendment.

Claim Rejections - 35 USC § 103

3. The rejections of claims 5-8 under 35 U.S.C. 103(a) as being unpatentable over Emerson as applied to claims 1-4 above have been **withdrawn** in view of Applicant's Amendment.

4. The rejections of claims 12 and 27 under 35 U.S.C. 103(a) as being unpatentable over Emerson as applied to claim1 and 25 above, and further in view of Dalhart et al. (3,623,913) have been **withdrawn** in view of Applicant's Amendment.

Response to Arguments

5. Applicant's arguments with respect to claims 1-12 and 22-27 have been considered but are moot in view of the new ground(s) of rejection.

(New) DETAILED ACTION

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said metal plate" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites "12. (Currently Amended) A product in accordance with claim 1 in the form of a bipolar plate of a fuel cell.".

Claim 1 recites "1. (Currently Amended) A product comprising...fuel cell bipolar plates..."

Accordingly, it is unclear as to how claim 12 further limits claim 1 as claim 1 already includes a limitation to a product in the form of a bipolar plate of a fuel cell.

Double Patenting

8. Applicant is advised that should claim 5be found allowable, claim 6 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-12 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adlhart et al. (3,623,913) in view of Lemelson (5,740,941).

Claim 1: Adlhart et al. in Figures 1-4 disclose a product (1) comprising two spaced apart fuel cell bipolar plates (6), each bipolar plated having gas flow channels (grooves) and a protective coating on the bipolar plates, and further comprising an electrolyte membrane (4) interposed between the two spaced apart fuel cell bipolar plates (col. 4: 48-col. 6: 68).

Adlhart et al. further disclose on col. 3: 64-73 "In selecting a suitable material of construction for the bipolar plate, the corrosive environment of the fuel cell and the electrical and thermal conductivity of the material and its cost are considerations. Where weight is also a factor, the plate is suitably constructed, **for example**, of aluminum or magnesium having a protective coating, **e.g.** gold. Other suitable materials include titanium, niobium, tantalum, and alloys, nickel-tantalum, tantalum-niobium, and graphite, carbon containing plastic composites, and the like.

The disclosure "**e.g.**" have been construed as non-limiting and can comprise other suitable protective coatings for providing protection against the corrosive attack by the electrolyte, and the disclosure "**for example**" have been construed as non-limiting and can comprise other materials of construction which can be determined by one skilled in the art as taught by Adlhart et al. on col. 3: 8-17).

However, Adlhart et al. do not disclose a doped coating comprising at least one of a doped diamond coating or a doped diamond-like coating.

Lemelson in Figure 2 discloses a conductive component comprising a metal part (50) having a doped coating (51) in the form of at least one of a doped diamond coating and a doped diamond-like carbon coating (col. 1: 36-41, col. 2: 34-42, and col. 7: 11-col. 9: 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the bipolar plate of Adlhart et al. by substituting the protective coating with the doped diamond coating or doped diamond-like carbon coating of Lemelson because Lemelson teaches a coating that would have provided new and improved structures in articles of manufacture capable of resisting erosion and surface scratching caused

by abrasive particles, expansion and contraction due to uneven heating and the corrosive effects of chemicals (col. 3: 8-20 and col. 5: 50-61).

Claim 2: The rejection is as set forth above in claim 1wherein further Lemelson in Figure 3 discloses a doped coating being doped with foreign atoms comprising one of foreign atoms of the main groups of the periodic table of elements and foreign atoms of the side groups of the periodic table of elements (col. 2: 34-42; and col. 4: 58-col. 5: 8).

Claim 3: The rejection is as set forth above in claim 1 wherein further Lemelson in Figure 3 discloses a doped coating being doped with at least one of the Ti and W (col. 2: 34-42; and col. 4: 58-col. 5: 8).

Claim 4: The rejection is as set forth above in claim 1 wherein further Lemelson in Figure 3 discloses a doped coating being doped with at least one of B and Fe (col. 2: 34-42; and col. 4: 58-col. 5: 8).

Claims 5-8: The rejection is as set forth above in claims 1, 3 and 4. However, Lemelson does not disclose the doped coating having between more than 0% and 35% foreign atoms, **as recited in claim 5**; the doped coating having between 10 and 20% foreign atoms, **as recited in claim 6**; the doped coating having between more than 0% and 35% foreign atoms, **as recited in claim 7**; and, the doped coating having between 10 and 20% foreign atoms, **as recited in claim 8**.

However, Lemelson discloses on col. 4: 58-col. 5: 8 "The coating material may be varied in its properties by adding select amounts of one or more other elements to either the solid, liquid and/or vaporous or gaseous carbon atom containing molecules applied to the rim portion 12 to form diamond-like materials doped or compounded with such other elements which may

comprise nitrogen and/or one or more various metals such as aluminum, silicon, titanium, tungsten, etc. A controlled radiation beam, such as a laser beam or plurality of such beams may be employed to effect one or more of the functions of depositing the one or more coating materials, ion implanting one or more materials in the coating or the glass or ceramic material, stripping atoms of carbon from hydrocarbon molecules and depositing such carbon atoms in the configurations described herein, heating the substrate and bonding the coating material thereto and forming the synthetic diamond or diamond-like material during and/or after deposition takes place."

Therefore, in light of the teaching of Lemelson, it would have been within the skill of one having ordinary skill in the art at the time the invention was made to have provided the conductive component of the Adlhart et al. combination with the claimed or any other %foreign atoms depending upon the desired properties of the coating in a controlled manner.

Claim 9: The rejection is as set forth above in claim 1 wherein further Lemelson discloses a doped coating having a layer thickness above 0μm and below 10 μm. In particular, Lemelson on col. 7: 24-29 discloses thicknesses of about 0.000004 in to 0.010 in which equates to 0.1 μm to 2.54 μm which falls within the claimed range.

Claim 10: The rejection is as set forth above in claim 1 wherein further Lemelson discloses a doped coating having a layer thickness in the range from 1 nm to 150 nm. In particular, Lemelson on col. 12: 10-33 discloses "The synthetic diamond coating 51 may be deposited as carbon atoms stripped from molecules of such gas as methane or other hydrocarbon, vaporous hydrocarbon or carbon atom containing material, combinations of gas and vapor carbon atom containing materials, preferably with suitable hydrogen gas mixed therewith to

provide suitably efficient deposition and synthetic diamond layer formation to the desired thickness which may vary in the range of 0.000001" to 0.010" and, **for most applications in the range of a few millions of all inch to a few thousandths of an inch."** A few millions of all inch has been construed as at least 3 or more millions of an inch. Accordingly, 3/100000 in (.000003 in) to 5/100000 in (.000005 in) equates to 76 to 127 nm which falls within the claimed range.

Claim 11: The rejection is as set forth above in claim 1 wherein Lemelson discloses a metal comprising titanium, steel, aluminum, an alloy of any of the foregoing (col. 6: 13-23, col. 7: 11-15, col. 7: 63-col. 8: 1, and col. 8: 44).

Claim 12: The rejection is as set forth above in claim 1.

Claim 22: The rejection is as set forth above in claim 1 wherein further Adlhart et al. in Figure 4 disclose a cathode (26) on one side of the electrolyte membrane (27) and an anode (25) on another side of the electrolyte membrane (col. 5: 70-74).

Claim 23: The rejection is as set forth above in claim 1 wherein further Adlhart et al. disclose bipolar plates comprising an intrinsically corrosion resistant and conductive metal. In particular, Adlhart et al. on col. 3: 64-73 disclose titanium, aluminum, and magnesium which are the same as those instantly disclosed as intrinsically corrosion resistant and conductive metals.

Claim 24: The rejection is as set forth above in claims 1 and 23 wherein further Lemelson teaches steel coated with doped diamond coating or doped diamond-like carbon coating (col. 7: 11-15 and 63-67, col. 8: 44-48, and col. 12: 34-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the bipolar plate of Adlhart et al. by substituting the aluminum provided with a protective coating with steel-doped diamond coating or doped

diamond-like carbon coating of Lemelson because Lemelson teaches a coated steel substrate that would have provided new and improved structures in articles of manufacture capable of resisting erosion and surface scratching caused by abrasive particles, expansion and contraction due to uneven heating and the corrosive effects of chemicals (col. 3: 8-20 and col. 5: 50-61).

Claim 25: The rejection of claim 25 is as set forth above in claim 1 wherein further Adlhart et al. disclose bipolar plates comprising an intrinsically corrosion resistant and conductive metal, and gas supply openings (entry) and discharge openings (outlet) (see col. 6: 4-8). In particular, Adlhart et al. on col. 3: 64-73 disclose titanium, aluminum, and magnesium which are the same as those instantly disclosed as intrinsically corrosion resistant and conductive metals.

Claim 26: The rejection of claim 26 is as set forth above in claims 2-4.

Claim 27: The rejection is as set forth above in claim 25 wherein further Lemelson teaches steel coated with doped diamond coating or doped diamond-like carbon coating (col. 7: 11-15 and 63-67, col. 8: 44-48, and col. 12: 34-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the bipolar plate of Adlhart et al. by substituting the aluminum provided with a protective coating with steel-doped diamond coating or doped diamond-like carbon coating of Lemelson because Lemelson teaches a coated steel substrate that would have provided new and improved structures in articles of manufacture capable of resisting erosion and surface scratching caused by abrasive particles, expansion and contraction due to uneven heating and the corrosive effects of chemicals (col. 3: 8-20 and col. 5: 50-61).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas H Parsons
Examiner
Art Unit 1745

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STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP 1700